What is claimed is:

1. An optical transmission system where one or a plurality of Raman amplifiers are positioned on an optical transmission line, wherein:

each of the Raman amplifiers comprises

a plurality of pump light sources producing pump lights for Raman amplification, and

a multiplexer multiplexing the pump lights produced by the plurality of pump light sources and providing a multiplexed pump light to the transmission line; and

a gain equalizer is arranged on the transmission line.

2. The optical transmission system according to claim 1, wherein

a gain wavelength characteristic of the gain equalizer is fixed.

3. The optical transmission system according to claim 1, wherein

a gain wavelength characteristic of the gain equalizer is dynamically adjusted so that a gain of the optical transmission system becomes a predetermined

value

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4. An optical transmission system where a plurality of Raman amplifiers are positioned on an optical transmission line, and each of the Raman amplifiers uses a plurality of pump lights, wherein

when power of a pump light having a first wavelength among the plurality of pump lights drops to a predetermined level or lower in a first Raman amplifier among the plurality of Raman amplifiers, power of a pump light having the first wavelength or a wavelength that is substantially the same as the first wavelength is raised in one or some of the plurality of Raman amplifiers other than the first Raman amplifier.

5. An optical transmission system where a plurality of Raman amplifiers are positioned on an optical transmission line, and each of the Raman amplifiers uses a plurality of pump lights, wherein

when power of a pump light having a first wavelength among the plurality of pump lights drops to a predetermined level or lower in a first Raman amplifier among the plurality of Raman amplifiers, power of a pump light having a wavelength adjacent to the first wavelength is raised in the first Raman amplifier or

another Raman amplifier.

6. An optical transmission system where a plurality of Raman amplifiers are positioned on an optical transmission line, wherein

a transmission loss of an optical transmission line between a first Raman amplifier and a second Raman amplifier that is adjacent to the first Raman amplifier among the plurality of Raman amplifiers increases, power of a pump light is raised at least in the first and the second Raman amplifiers.

7. An optical transmission system where a plurality of Raman amplifiers are positioned on an optical transmission line, wherein

a transmission loss of an optical transmission line between a first Raman amplifier and a second Raman amplifier that is adjacent to the first Raman amplifier among the plurality of Raman amplifiers increases, power of a pump light to be provided to a transmission line other than the transmission line between the first and the second Raman amplifiers is raised.

8. An optical transmission system where a plurality of Raman amplifiers are positioned on an optical

transmission line, and each of the Raman amplifiers uses a plurality of pump lights, wherein:

each of the Raman amplifiers comprises a multiplexer multiplexing the plurality of pump lights, and providing a multiplexed pump light to the optical transmission line; and

an average of characteristics of a plurality of multiplexers that are arranged in the plurality of Raman amplifiers becomes a predetermined characteristic.

9. The optical transmission system according to claim 8, wherein

the multiplexers are selected and arranged so that the average of the characteristics of the plurality of multiplexers becomes a predetermined characteristic every predetermined number of Raman amplifiers.

10. The optical transmission system according to claim 9, wherein

if the optical transmission line accommodates "m" optical fibers, the predetermined number is "m" or an integer multiple of "m".

11. The optical transmission system according to claim 4, wherein:

the optical transmission line accommodates "m" optical fibers; and

"m" pump lights having different wavelengths are multiplexed in each of the Raman amplifiers, and a multiplexed pump light is respectively provided to the "m" optical fibers.

12. The optical transmission system according to claim 4, wherein:

the optical transmission line accommodates "m" optical fibers;

each of the Raman amplifiers comprises a multiplexer having "m" input ports and "m" output ports;

a polarization-coupled light that is obtained by polarization-coupling two pump lights is input to each of the "m" input ports; and

the multiplexer multiplexes the polarization-coupled lights input via the "m" input ports, and respectively provides a multiplexed light to the "m" optical fibers.

13. The optical transmission system according to claim 4, wherein:

each of the Raman amplifiers comprises a multiplexer multiplexing a plurality of pump lights,

and providing a multiplexed pump light to the optical transmission line;

a plurality of multiplexers are selected and arranged so that an average of characteristics of the multiplexers comprised by a predetermined number of Raman amplifiers becomes a predetermined characteristic every predetermined number of Raman amplifiers; and

power of a pump light is raised in the predetermined number of Raman amplifiers.

14. The optical transmission system according to claim 7, wherein

when an amount of increase in the transmission loss of the optical transmission line is "L", and the number of Raman amplifiers where power of a pump light is to be raised is "a", the pump light is adjusted so that an amount of a gain increased by each of the "a" Raman amplifiers is "L/a".

15. An optical transmission method with which a plurality of Raman amplifiers are positioned on an optical transmission line between a first optical terminal station and a second optical terminal station, and each of the Raman amplifiers uses a plurality of pump lights, wherein:

power of each of the plurality of pump lights in the plurality of Raman amplifiers is detected by the first optical terminal station;

when power of a pump light having a first wavelength among the plurality of pump lights drops to a predetermined level or lower in a first Raman amplifier among the plurality of Raman amplifiers, a control signal for raising power of a pump light having the first wavelength or a wavelength that is substantially the same as the first wavelength is transmitted from the first optical terminal station to one or some of the plurality of Raman amplifiers other than the first Raman amplifier; and

pump light is adjusted in accordance with the control signal in the one or some of the plurality of Raman amplifiers.

16. An optical transmission method with which a plurality of Raman amplifiers are positioned on an optical transmission line between a first optical terminal station and a second optical terminal station, and each of the Raman amplifiers uses a plurality of pump lights, wherein:

power of each of the plurality of pump lights in the plurality of Raman amplifiers is detected by the

first optical terminal station;

when power of a pump light having a first wavelength among the plurality of pump lights drops to a predetermined level or lower in a first Raman amplifier among the plurality of Raman amplifiers, a control signal for raising power of a pump light having a wavelength adjacent to the first wavelength is transmitted from the first optical terminal station to the first Raman amplifier; and

the pump light is adjusted in accordance with the control signal in the first Raman amplifier.